

FIELD NOTES ON *PLATYBRACHYS*, &c.
(HOMOPTERA).

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(Plates V.—VIII.)

FAMILY EURYBRACHIDÆ.

PLATYBRACHYS LEUCOSTIGMA (Wlk.).

Eggs.—Length 1.87 mm., width 1 mm.; oval, opaque, smooth, with creamy or pale greenish tint. Examined microscopically there is a small stud-like protuberance at the cephalic end, which is bright yellow in a balsam mount and appears to be of a fibrous nature. Under higher magnification, at the opposite end is a minute colourless protuberance around which small typical micropylar cells can be distinguished. The egg shell is colourless and finely granulated.

The egg patches are conspicuous objects on the trunks of Spotted Gums, *Eucalyptus maculatus*, in this district. During February numerous females were observed ovipositing on the trunks of these trees, generally at a height of three feet to twenty feet or more from the ground. The bark of spotted gum comes off in small scales, leaving oval depressions or scars. These are the places selected by *P. leucostigma* for oviposition. They take up a position in the centre of these hollows during the operation, and place the eggs in neat rows, moving gradually upward as the rows are completed. To place the outside eggs in position, the insect inclines its body from side to side without shifting its central position. When each row is completed she rubs the posterior end of her body over the eggs, covering them with white material from a mass which is situated there. This covering is carried half an inch beyond the eggs on each side, and the method is plainly indicated by the curved striæ across the egg-covers in fig. 2. The eggs are fastened to the bark rather firmly, with their upper ends inclining away from the tree. In the central part of the depression they are placed two deep, and the covering is finished off flush with the surrounding bark.

Nymphs.—The young nymphs emerge through slits in the outer side of the shells which extend from the stud-like protuberance to the middle and

push their way through the waxy covering, making ragged tears and cracks. They are pale yellow, with black eyes, and remain motionless in a cluster on the white cover. After a few hours they become grey. On the second day the two long tails characteristic of these and other *Platybrachys* nymphs appear. On the third or fourth day the cluster breaks up, and they scatter over the tree, going up into the higher branches.

The two anal appendages of *Platybrachys* nymphs consist of excremental material. It is forced through two circular plates situated on either side of the last segment. They are divided into many small compartments by fine radiating and concentric lines, somewhat resembling the markings on an *Arachnoidiscus* diatom. These circular plates are present in nymphs of all ages. Even when newly hatched they are present, but are, of course, much smaller and contain fewer compartments. After passing through these plates the excrement is drawn out into long bundles of fine glassy filaments, tightly twisted until near the apical ends, which become untwisted and brushlike. The appendages are constantly growing, but as the loose ends (being very brittle) are continually being abraded, the average length remains constant in the different instars, reaching a maximum of about 12 mm. in the last. After each moult they are left behind on the discarded skins, but others soon appear and gradually lengthen until the maximum is reached.

Platybrachys are double brooded; from eggs hatching in February the winter months are passed in the nymphal state, the adults emerging in spring. From eggs laid in September, the summer months are passed in the nymphal state, the adults appearing in February. The latter is the main brood.

Considering the unprotected condition of these insects in all their stages, and the number of their enemies, both predatory and parasitic, it seems incredible that any can survive, as their only defence seems to be their ability to make quick leaps. It is evident, however, that large numbers do escape, as they are numerous in all our eucalyptus forests.

A Pentatomid bug *Theseus modestus* Stål, both in its larval and adult stages, is very fond of *Platybrachys* eggs. They have frequently been observed on the egg patches with their rostra inserted through the covering. Two Chalcids¹ and a Proctotrypid² parasite were often noticed on the egg patches. I have bred out all three from gathered eggs. They are *Fulgoridicida nigricorpus* Gir. (Family Encyrtidæ), *Euryischia unmaculatipennis* Gir. (Family Elasmidæ), and *Aphanomerus niger* Perk.

¹ Identified by A. A. Girault.

² Identified by A. P. Dodd.

Sometimes the egg patches are so situated that in heavy rain they are exposed to streams of water flowing down the tree trunks. If the covering should become injured so that the eggs are exposed, they are quickly discovered by ants, which cut the eggs out and carry them away. On two occasions nymphs were captured carrying white external parasites on the dorsal surface. These left the nymphs soon after, and formed white cocoons, from which emerged small moths (Family Epipyropidæ). Sometimes the adults are heavily infested with Dryinid parasites. There is an adult female specimen before me with six larval sacs of these wasps attached to its abdomen.

I might state that all the activities of *Platybrachys* recorded here, including their emergence, were carried on during the day. The pair of *P. decemmacula* taken in copula were found early in the afternoon. All the egg patches were commenced in the morning and finished before nightfall. The adults are less active towards evening and in dull weather. If disturbed late in the day, instead of immediately flying back to the tree trunks they hide among the grass or dead leaves at the foot.

PLATYBRACHYS LEUCOSTIGMA (Wlk.) = **PLATYBRACHYS ÆRATA** Dist.

Having collected during two years a long series of *P. leucostigma* Wlk., I was much struck by the fact that they were all females. In a long series of *P. ærata* Dist. taken during the same period all the specimens were males. Although without the proof which a pair taken in copula would give, I feel sure that *P. leucostigma* Wlk. and *P. ærata* Dist. are sexes of the same species. They both occur plentifully on Spotted Gums at the same time. Furthermore, by considering these to be a single species both sexes of every species of *Platybrachys* occurring commonly in the Brisbane district will be accounted for. The list is as follows:—

- Platybrachys signata* Dist. ♂ ♀.
- Platybrachys sanguiflua* (Walk.) ♂ ♀.
- { *Platybrachys decemmacula* (Walk.). ♀.
- { *Platybrachys decisa* (Walk.). ♂.
- Platybrachys oculata* Kirk. Dark var. ♂ ♀.
- Platybrachys maculipennis* Le Guill. ♂ ♀.
- { *Platybrachys leucostigma* (Walk.). ♀.
- { *Platybrachys ærata* Dist. ♂.

PLATYBRACHYS MACULIPENNIS Le Guill.

The feeding tree of this species is Stringy Bark, *Eucalyptus acmenioides*. Instead of ovipositing on the tree trunks like *P. leucostigma*, the female places her egg patches on the leaves. Either surface of a leaf may be used for this purpose,

probably because they all hang vertically. The covers are white and smooth, 18 mm. long and 11 mm. wide. The average cluster contains between twenty and thirty eggs. The eggs are oval, length 1.50 mm.; breadth .75 mm., and are without the stud-like protuberance possessed by those of *P. leucostigma*.

PLATYBRACHYS DECEMMACULA (Wlk.) = **PLATYBRACHYS DECISA** (Wlk.)

On February 18th a pair were seen in copula on a tree trunk. They were carefully boxed and brought back alive. When examined it was found that the female was *P. decemmacula*, while the male was identical with a specimen recently returned from the British Museum as *P. decisa*. Both sexes are figured on Plate VII., fig. 12.

OLONIA VIRIDIVENTRIS Stål.

This species is rather local. It has been taken at two places in the Brisbane district, and specimens have been received from Toowoomba and Bribie Island. Its feeding tree about Brisbane is *Acacia cunninghamii* Hook. The eggs have not yet been found, nor have the nymphs been recognised with certainty, as nymphs and adults of *Gelastopsis transversa* Walk., and *Dardus abbreviatus* Guér., both occur and feed on the same clumps of Wattles. *O. viridiventris* approaches *Platybrachys* rather than *Olonia* in the shape of the tegmina. The pronotum and scutellum together are shorter than wide, and this places the species in *Olonia*. In *Platybrachys* the pronotum and scutellum together are as long as wide.

The following collecting notes give some particulars about the new species described by Mr. F. Muir in this Part, and may be considered supplementary to that paper.

DERBIDÆ.

PHANTASMATOCERA PULCHELLA Muir.

This species was found in December occurring in large numbers on the long flag-like leaves of *Helmholtzia glaberrima* at Canungra Creek Falls, National Park, 2,000 ft. There is little doubt that this is its feeding plant, as although all the surrounding vegetation was beaten, they were found only on this giant lily. When disturbed they fly rather weakly, either to the nearest foliage, or circle round and return to the lily leaves.

KAMANDAKA (EOSACCHARISSA) LONGMANI Muir, and **HERONAX DUBIUS** Muir.

Both these species were obtained in dense jungle at the National Park, 3,000 ft. Most of the series were beaten out of dead tree-fern fronds. The dead fronds hang vertically round the stems, and make good shelters during the day for these delicate insects. It is also a favourite hiding place for numerous species of Microlepidoptera, to many of which the Derbiids bear a superficial resemblance.

RICANIIDAE.

GAETULIA HACKERI Muir.

Taken at Russell Island, Moreton Bay, in December. Their feeding tree is She-oak, *Casuarina* sp. They hide at the base of the trees during the day. About dusk both nymphs and adults were observed ascending the tree trunks to feed in the higher branches. They seem to prefer young trees about 20 ft. high with a trunk about the thickness of one's arm. The nymphs carry a long tuft of white filaments at the apex of their abdomens.

PARALASONIA AUSTRALIS Muir.

This remarkable-looking insect has been found in two widely separated localities. At Russell Island they were taken at dusk, on *Casuarina*, in company with *Gzulia hackeri* Muir. At the National Park, at a low elevation they were obtained during the day by sweeping grass and herbage under *Casuarina* trees. As in both localities they were found associated with *Casuarina*, this may, I think, be safely considered to be their feeding tree.

EXPLANATION OF PLATES.

PLATE V.

- Fig. 1.—*Platybrachys leucostigma* (Wlk.) Egg patches on the trunk of a spotted gum.
 Fig. 2.—*Platybrachys leucostigma* (Wlk.) Young nymphs emerging from eggs. $\times 1.75$.
 Fig. 3.—*Platybrachys leucostigma* (Wlk.) Young nymphs two days old. $\times 1.5$.
 Fig. 4.—*Platybrachys leucostigma* (Wlk.) Four females on tree trunk, one of which has just completed an egg patch. $\times 6$.

PLATE VI.

- Fig. 5.—*Platybrachys leucostigma* (Wlk.) Egg showing stud-like protuberance (Balsam mount). $\times 40$.
 Fig. 6.—*Platybrachys leucostigma* (Wlk.) Newly-hatched nymph (Balsam mount). $\times 23$.
 Fig. 7.—*Platybrachys leucostigma* (Wlk.) Nymphs. Last instar. $\times 2$.
 Fig. 8.—*Platybrachys leucostigma* (Wlk.) Adult females. $\times 2.5$.

PLATE VII.

- Fig. 9.—*Pentatomid bug*. Larva feeding on eggs. $\times 1$.
 Fig. 10.—*Platybrachys maculipennis* Le Guill. Egg patches on leaves of stringy bark. $\times 1$.
 Fig. 11.—*Platybrachys maculipennis* Le Guill. Adults, male and female. $\times 3$.
 Fig. 12.—*Platybrachys decemmacula* (Wlk.) Adults, male and female. $\times 3$.

PLATE VIII.

- Fig. 13.—*Olonia viridiventris* Stål. Adults, male and female. $\times 2.75$.
 Fig. 14.—*Platybrachys leucostigma* (Wlk.) Adult males. $\times 2.75$.
 Fig. 15.—*Platybrachys leucostigma* (Wlk.) Last abdominal segment of nymph, showing circular plates. $\times 100$.